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| CATEGORY | 4 | 3 | 2 | 1 |
| Modification/Testing | Clear evidence of troubleshooting, testing, and refinements based on data or scientific principles. *(Examples could be extra trials if not consistent results, discussion of procedures like dropping pennies one at a time to determine exact breakage point, how to clamp ends securely.)* | Clear evidence of troubleshooting, testing and refinements. | Some evidence of troubleshooting, testing and refinements. | Little evidence of troubleshooting, testing or refinement. |
| Scientific Knowledge | Explanations by all group members indicate a clear and accurate understanding of scientific principles underlying the construction. *(Examples could be did adding pressure improve glue/wood bond.)* | Explanations by all group members indicate a relatively accurate understanding of scientific principles underlying the construction and modifications. | Explanations by most group members indicate relatively accurate understanding of scientific principles underlying the construction and modifications. | Explanations by several members of the group do not illustrate much understanding of scientific principles underlying the construction and modifications. |
| Information Gathering | *Accurate information taken from several sources in a systematic manner. (Example would be did the groups compare results for data consistency and if not speculation on why data differs between groups.)* | Accurate information taken from a couple of sources in a systematic manner. | Accurate information taken from a couple of sources but not systematically. | Information taken from only one source and/or information not accurate. |
| Plan | Plan is neat with clear measurements and labeling for all components. *(Example would be did the groups mark sticks on each end and mid point to identify where clamping needed and bucket* *hung during testing phase.)* | Plan is neat with clear measurements and labeling for most components. | Plan provides clear measurements and labeling for most components. | Plan does not show measurements clearly or is otherwise inadequately labeled. |
| Controls and Experimental Process | All controls identified, multiple trials carried out and general understanding of experimental process understood. | Most controls identified, multiple trials carried out and general understanding of experimental process understood | Many controls identified and multiple trials carried out | Experimental process not understood |
| Group Work | Collaborated, planned and carried out project together without being prompted by the teacher. | Occasionally, needed prompting. Teacher had to resolve few issues. | Needed prompting often. Needed teacher to resolve multiple issues. | Failed to work together or complete assignment. |